REMARKS

Claims 1-6 are pending in the present application.

Applicants wish to thank Examiner Slobodyansky for the helpful and courteous discussion with their undersigned Representative on September 3, 2003. During this discussion, various amendments were discussed to address the outstanding rejections. In particular, the amendment to the specification to provide the sequence of GenBank accession Y00492 was discussed. The content of this discussion is reflected in the amendments and comment provided herein.

The rejection of Claims 1-3 under 35 U.S.C. §112, first paragraph ("written description"), is obviated by amendment.

The Office has alleged that the specification fails to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (paper number 13, page 5, lines 8-10). It appears that this ground of rejection is based on the absence of a recitation of a specific wild type N-acetylglutamate synthase (NAGS) sequence in Claim 1, as well the lack of a limit on the scope of homologs permitted in Claim 3.

Applicants note that the claims have been amended to provide the wild type NAGS sequence and to include a recitation that the isolated polynucleotides within the scope of these claims encode a protein that is at least 70% homologous to a protein having amino acid sequence defined in SEQ ID NO: 16 and wherein said protein has a N-acetylglutamate synthase activity. The N-acetylglutamate synthase activity and methods of screening for this activity is exemplified in the specification at page 14, line 5 to page 20, line 20.

MPEP § 2163.02:

> An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." *In re Gostelli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989).

Applicants submit that the specification provides an adequate description to allow the skilled artisan to recognize what has been invented and what is claimed is adequately described in the specification within the meaning of 35 U.S.C. § 112, first paragraph.

Applicants request withdrawal of this ground of rejection.

The rejection of Claims 1-3 under 35 U.S.C. § 112, first paragraph ("enablement") is obviated in part by amendment and traversed in part.

The Office has taken the position that the claimed invention is not supported by an enabling disclosure. Applicants respectfully disagree.

MPEP § 2164.01 states:

> The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.

Applicants submit that determining what sequences fall within or without the scope of amended Claims 1-3 would be readily apparent to the skilled artisan. Present Claim 1 provides a mutant N-acetylglutamate synthase wherein the amino acid sequence corresponding to positions from 15 to 19 in a wild type N-acetylgluatmate synthase is replaced with any one of amino acid sequences of SEQ ID NOS: 1 to 4, and feedback inhibition by L-arginine is desensitized, wherein the wild type N-acetylglutamate synthase is a protein defined in the following (A) or (B):

(A) a protein having an amino acid sequence defined in SEQ ID NO: 16; or

(B) a protein that is encoded by a DNA which hybridizes with a DNA having the nucleotide sequence defined in SEQ ID NO: 15 under stringent conditions, and wherein said protein is at least 70% homologous to a protein having amino acid sequence defined in SEQ ID NO: 16 and wherein said protein has a N-acetylglutamate synthase activity.

At page 14, line 5 to page 20, line 20, Applicants provide a detailed example of how the skilled artisan may clone, express, and characterize any sequence variant to assess its standing with respect to the claimed invention.

In fact, MPEP §2164.06 states:

> ... quantity of experimentation needed to be performed by one skilled in the art is only one factor involved in determining whether "undue experimentation" is required to make and use the invention. "[A]n extended period of experimentation may not be undue if the skilled artisan is given sufficient direction or guidance." In re Colianni, 561 F.2d 220, 224, 195 USPQ 150, 153 (CCPA 1977). " 'The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed.'

Applicants submit that, with the present specification in hand, determination of protein sequences that fall within the scope of Claims 1-3 would require nothing more than routine experimentation to determine sequence homology and protein activity. As such, Applicants submit that Claims 1-3 are fully enabled within the context of 35 U.S.C. §112, first paragraph.

Moreover, Applicants remind the Examiner that MPEP §2164.04 states:

> A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support.

As stated above, at page 14, line 5 to page 20, line 20, Applicants provide a detailed explanation of how the skilled artisan may clone, express, and characterize the proteins within the scope of Claims 1-3. In addition, Applicants wish to refer the Examiner to page 7, line 3 to page 10, line 14, which further defines the mutant NAGS and methods of making the same.

Based on the foregoing, Applicants submit that the present claims are fully enabled by the specification and the common knowledge available in the art and as such withdrawal of this ground of rejection is requested.

The rejection of Claims 1-3 under 35 U.S.C. §112, second paragraph, is obviated by amendment.

The Examiner has rejected these claims on the basis that "Applicant has not provided the amino acid sequence of the wild type NAGS from E. coli." The specification has been amended to provide sequence identifiers for the wild type *arg*A gene of *E. coli* having GenBank Accession Y00492. In addition, the gene sequence and the corresponding protein sequence encoded therein have been added to the Sequence Listing as new SEQ ID NOs: 15 and 16. Support for this amendment is found throughout the specification as filed, including the Examples. Further support for this amendment is offered by the Declaration under 37 C.F.R. §1.132 (executed by Leonid R. Ptitsyn), which declares that the sequence provided as new SEQ ID NOs: 15 and 16 correspond to the wild-type *arg*A gene that was utilized in the Examples of the present application. As such, the specification and claims now specifically recite the wild type NAGS from E. coli to fully permit the skilled artisan to determine the metes and bounds of the claims. Accordingly, Applicants submit that Claims 1-3 are definite within the context of 35 U.S.C. §112, second paragraph.

Withdrawal of this ground of rejection is requested.

The objection of Claim 3 under 37 C.F.R. §1.75(c) and the objection of Claim 2 are obviated by amendment. Applicants note that Claim 2 has been amended to provide proper antecedent basis. In addition, Claim 3 has been amended to clearly indicate that the mutant N-acetylglutamate synthase falls within the scope of Claim 1 from which it depends.

Applicants request withdrawal of these objections to the claims.

The objection to the specification has been obviated by the amendment above. In particular, Applicants note that the trademark used on page 14 has been amended to be properly recited in all capital letters. Acknowledgement that this ground of objection has been withdrawn is requested.

In regards to the Restriction Requirement, Applicants affirm the election of Group I, Claims 1-3, with traverse, for examination.

The Office has restricted this application as follows under 35 U.S.C. §121:

Group I: Claims 1-3, drawn to a mutant N-acetylglutamate synthase; and

Group II: Claims 4-6, drawn to a DNA, an E. coli cell transformed with the same, a method of use of said cell for producing L-arginine.

Applicants note that the claims of Group II depend directly from the claims of Group I, and as such it is improper to separate these claims.

Applicants traverse the Restriction Requirement on the grounds that the Office has failed to show that a burden would exist in searching all the claims of the present application.

MPEP §803 states:

> If the search and examination of an entire application can be made without serious burden, the Examiner must examine it on the merits, even though it includes claims to independent and distinct inventions.

Applicants submit that a search and examination of all the claims would not constitute a series burden upon the Examiner.

Additionally, MPEP §821.04

> ...if applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims which depend from or otherwise include all the limitations of the allowable product claim will be rejoined.

Applicants respectfully submit that should the elected group be found allowable, non-elected process claims that include all the limitations of the allowable product should be rejoined.

Finally, Applicants have now submitted a substitute Sequence Listing and a corresponding computer-readable Sequence Listing. The sequence information recorded in the corresponding computer-readable Sequence Listing is identical to the paper copy of the substitute Sequence Listing. Support for all of the sequences listed in the substitute Sequence Listing is found in the present application as originally filed. No new matter is believed to have been introduced by the submission of the substitute Sequence Listing and the corresponding computer-readable Sequence Listing.

Applicants submit that the present application is now in condition for allowance.

Early notification of such action is earnestly solicited.

Respectfully submitted,

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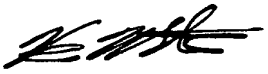

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